

Expedited Proceeding under 35 C.F.R. § 1.116
Examining Unit 1616

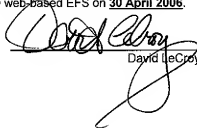
PATENT APPLICATION
Attorney Docket No. 1942.PC

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: CAO, Hongjie *et al.*
SERIAL NO.: 09/932 435 **GROUP ART UNIT:** 1616
FILED: 17 August 2001 **EXAMINER:** GOLLAMUDI, Sharmila S.
ENTITLED: USE OF XANTHAN GUM AS A HAIR FIXATIVE

CERTIFICATE of TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence is being transmitted to the United States Patent and Trademark Office via the USPTO web-based EFS on **30 April 2006**.



David McCroy

Mailstop AF
Commissioner for Patents
Post Office Box 1450
Alexandria, Virginia 22313-1450

REPLY UNDER 37 C.F.R. § 1.116

Dear Sir:

This Reply is in response to the final Office Action dated 2 November 2005. In reply to that Action, Applicants submit the following Remarks –

AMENDMENTS**In the Claims:**

1. (Previously presented) A hair cosmetic composition comprising a fixative effective amount of xanthan gum, wherein the composition has a high humidity curl retention of at least about 80% for two hours at 90% relative humidity, and wherein the xanthan gum has been heat treated at a moisture content of less than about 8%, a temperature of at least about 100°C for at least about 30 minutes, wherein the cosmetic composition is a hair fixative composition.
2. (Cancelled)
3. (Cancelled)
4. (Previously presented) The composition of claim 1, wherein the temperature is at least 105°C.
5. (Cancelled)
6. (Previously presented) The composition of claim 1, wherein the moisture content is less than about 1%.
7. (Previously presented) The composition of claim 1 wherein the heat treatment is for at least about one hour.
8. (Previously presented) The composition of claim 7 wherein the heat treatment is for at least about 2.5 hours.
9. (Previously presented) The composition of claim 1 wherein the heat treatment is at a moisture of less than about 1% and the temperature is at least about 105°C for at least about 2.5 hours.

10. (Original) The composition of claim 1, wherein the composition is selected from the group consisting of a spray, a mousse, a hair lotion, a cream, a pomade, and a gel.
11. (Original) The composition of claim 10, wherein the composition is a gel.
12. (Previously presented) The composition of claim 1 characterized by a viscosity of at least about 8000 cps, and a turbidity of no more than about 100 NTU (Nephelometric Turbidity Units).
13. (Original) The composition of claim 1, further comprising a second fixative polymer.
14. (Previously presented) The composition of claim 13 wherein the second fixative polymer is selected from the group consisting of acrylates copolymer, octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer, acrylates/octylacrylamide copolymer, VA/crotonates/vinyl Neodecanoate copolymer, poly(N-vinyl acetamide), poly(N-vinyl formamide), polyurethane, corn starch modified, sodium polystyrene sulfonate, polyquaternium-4, polyquaternium-10 and polyurethane/acrylates copolymer.
15. (Cancelled)
16. (Previously presented) The composition of claim 11 further comprising a second fixative polymer.

17. (Previously presented) The composition of claim 16 wherein the second fixative polymer is selected from the group consisting of acrylates copolymer, octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer, acrylates/octylacrylamide copolymer, VA/crotonates/vinyl Neodecanoate copolymer, poly(N-vinyl acetamide), poly(N-vinyl formamide), polyurethane, corn starch modified, sodium polystyrene sulfonate, polyquaternium-4, polyquaternium-10 and polyurethane/acrylates copolymer.
18. (Original) A method of preparing the composition of claim 1, comprising dispersing the xanthan gum in water; and mixing in other hair cosmetic components.
19. (Cancelled)
20. (Original) A method of preparing the composition of claim 17 comprising dispersing the xanthan gum in water; and mixing in other hair cosmetic components.
21. (Original) A method of providing fixative properties to the hair comprising applying the composition of claim 1.
22. (Original) A method of providing curl retention under high humidity conditions comprising applying the composition of claim 1.
23. (Previously presented) The composition of claim 1, wherein the composition is a surfactant-free hair mousse.
24. (Previously presented) A hair cosmetic composition, wherein the fixative consists essentially of a xanthan gum and the high humidity curl retention is at least about 80% after two hours at 90% relative humidity, and wherein the xanthan gum has been heat treated at a moisture content of less than about 8%, a temperature of at least about 100°C for at least about 30 minutes, wherein the composition is a hair fixative composition.

25. (Previously presented) The composition of claim 24, wherein the composition is selected from the group consisting of a spray, a mousse, a hair lotion, a cream, a pomade, and a gel.
26. (Previously presented) The composition of claim 25, wherein the composition is a gel.
27. (Previously presented) The composition of claim 24 characterized by a viscosity of at least about 8000 cps, and a turbidity of no more than about 100 NTU (Nephelometric Turbidity Units).
28. (Previously presented) The composition of claim 24, wherein the composition is a surfactant-free hair mousse.

REMARKS

Claims 1, 4-14, 16-18 and 20-28 are pending. Claims 1, 4-14, 16-18 and 20-28 stand rejected. No amendments are made with this Reply.

Reply to the Amendment to the Specification

The Examiner has objected to the amendment filed 23 August 2005 as introducing new matter into the disclosure. For the following reasons, Applicants respectfully traverse the Examiner's objection to the amendment.

Regarding the Examiner's remark that "Applicant states that the amendment is consistent with the other examples", Applicants find this to be a mischaracterization of what Applicants stated. Specifically, Applicants stated that ALL Formulae EXCEPT Formulae 26-30 teach heat treating the xanthan gum in a fluidized bed reactor at 235°F for 60 minutes. The Examiner "points out" Formulae 26-30 "utilize various temperature and time frames". Applicants encourage the Examiner to refer again to Formulae 26-30. Those particular Formulae are specifically provided to illustrate the effect on xanthan gum of different heat treatment processing conditions. ("Formulas 26-30 show hair gels using xanthan gum samples that are heat-treated under different conditions", p. 13 of the Description.) Therefore, the processing conditions are varied in those Formulae 26-30 to provide support for the range of heat treatment parameters taught in the instant specification. Formulae 13-15 were amended to be consistent with the remaining Formulae 2-6, 21, 22, 31-38 and 40, all of which utilized xanthan gum heat treated in a fluidized bed reactor at 235°F for 60 minutes. Accordingly, one skilled in the art would readily recognize that the xanthan gum of Formulae 13-15 would have been treated in the same manner, as this is consistent with the Description. Therefore, Applicants assert that no new matter is introduced by this amendment.

Reply to the Rejection of Claims 1, 4, 6-11, 18 and 24-26 under 35 U.S.C. § 102(b)

The Examiner has rejected Claims 1, 4, 6-11, 18 and 24-26 as being anticipated by Japanese Patent Publication No. 11-236310 to Kousei Laboratories, Ltd. ("Kousei"). For the following reasons, Applicants respectfully traverse the Examiner's rejection of claims 1, 4, 6-11, 18 and 24-26 as being anticipated by Kousei.

Kousei teaches cosmetics containing a xanthan gum having an apparent average molecular weight of 16,000,000 or higher (p. 2 of translation). The high molecular weight xanthan gum is obtained by heating the xanthan gum so that it has a drying decrease of 50 weight % or less at 100-140°C (212-284°F) for 30 minutes or more (pp. 4-5 of translation). The heat treatment can be performed in an inert gas that does not react with the xanthan gum or an inert solvent (p. 5 of translation). The inert gases and liquids help avoid discoloration of the gum (*id.*). Examples of inert gases included nitrogen, helium, carbon dioxide and **water vapor** (*id.*). Air is used in the examples, which is well known in the art to contain moisture. Inert solvents include various alcohols, alkane diols, and ethers (*id.*).

Applicants take offense to the Examiner's statement that "Applicant has made a misleading statement". Firstly, nowhere have Applicants stated that "water" is taught as one of the liquids (see above). Instead, Applicants have only briefly listed those types of solvents described at the last paragraph of p. 5 of Kousei. Secondly, regarding the Examiner's statement that "although water vapor as one of the gases utilized to dry the gum, JP notes that that **gas used does not react with the gum**", Applicants state that one cannot reduce the moisture content of starches, gums or other carbohydrates to very low content (here, less than 8% moisture) in the presence of moisture, such as is found in air or water vapor. To reduce the moisture content to such levels, processing must be done in anhydrous conditions. All working examples of Kousei were heat-treated in air, and therefore in the presence of moisture. A vacuum was used in order to avoid discoloration (see p. 5, 3rd ¶, next to last sentence ("... it is also possible to avoid discoloration even in air by reducing the pressure to a sufficient degree").

'Drying decrease' is defined by Kousei as "the decrease in quantity when the gum is heated for 5 hours at 105°C under atmospheric pressure" (p. 4 of translation). Accordingly, at most, no more than half of the moisture in the gum should be removed when heat treated (see p. 5 of translation, stating that the gum should have a drying decrease (or decrease in quantity) of 50 weight % or less, preferably 20 weight % or less, and especially 15 weight % or less). Kousei exemplifies this definition by referring to the drying decrease of liquid-cultured xanthan gum. According to Kousei, if the reduction in the amount of the gum when heat treated is greater than 50 weight % (*i.e.*, if the gum is

dried to less than 50 weight % of its original raw weight), the gum temperature will not rise sufficiently and it will have no effect (p. 5 of translation). Kousei does not teach xanthan gum having “moisture content of less than 50%, preferably less than 20%, and most preferably less than 15%”, as asserted by the Examiner.

Applicants take offense to the Examiner’s assertion that “applicant has quoted isolated portions of JP’s teachings to fit applicant’s arguments.” Applicant has merely restated the definition of drying decrease that Kousei provides on pp. 4-5 of the translation. As noted above, Kousei uses as illustration reference to the drying decrease of liquid-cultured xanthan gum. Accordingly, Applicants assert that their statements with respect to drying decrease are correct, and not the Examiners’.

Further, this moisture content limitation stated by Kousei is in contrast to the Examiner’s statement that the xanthan gum of Example 2 of Kousei would inherently have a moisture content of less than 8 % and less than 1 %. Because the xanthan gum of Example 2 is heat treated in air, and it is known that air contains moisture, one skilled in the art would NOT expect the xanthan gum of Example 2 of Kousei to have a moisture content of less than 8 %, even more so less than 1 %.

Kousei states that cosmetics containing its xanthan gum include skin cosmetics such as foundations, rouges, eye shadows, mascaras, eye liners, lipsticks, toilet water, emulsions, lip creams, hand creams, cleansers and hair cosmetics (p. 11 of translation). Kousei only exemplifies skin cosmetics, and makes no other reference to hair cosmetics, failing to indicate what types of hair cosmetics its xanthan gums might be useful for (e.g., shampoos and/or conditioners, which typically consider viscosity applications; or hair sprays, gels, etc., which are directed towards hair fixative applications).

Applicants have asserted throughout the course of this prosecution that Kousei does not teach the use of xanthan gum as a hair fixative. Instead, Kousei only teaches the use of high molecular weight xanthan gum as a thickener or rheology (viscosity) modifier. Viscosity modification and hair fixation (film-forming) are two unrelated applications (and therefore are directed towards different structural applications) that typically require unrelated polymers. Still, the Examiner continues to assert that Reference Example 2 of Kousei must inherently meet the curl retention limitation of the instant claims. Reference Example 2 is directed towards viscosity, not the film-forming

ability of xanthan gum. Therefore, Applicant asserts that Reference Example 2 tells nothing to one skilled in the art with respect to the ability of xanthan gum to provide "high humidity curl retention of at least about 80% for two hours at 90% relative humidity" in a hair fixative composition. Accordingly, it is not necessarily inherent that the high molecular weight xanthan gum of Kousei will provide excellent hold in the cited humidity conditions (a hair fixative application, not a viscosity application).

Anticipation (lack of novelty) is established only if (1) all the elements of an invention, as stated in a patent claim, (2) are identically set forth (3) in a single prior art reference. *Gechter v. Davidson*, 116 F.3d 1454, 1457, 43 USPQ2d 1030, 1032 (Fed. Cir. 1997) ("Under 35 U.S.C. § 102, every limit of a claim must identically appear in a single prior art reference for it to anticipate the claim"). As shown above, Kousei does not teach or suggest heat treating xanthan gum to a moisture content of less than about 8%. Further, nowhere does Kousei teach or suggest that its xanthan gum will provide high humidity curl retention of at least about 80% for two hours at 90% relative humidity (a hair fixing property). Finally, Kousei only briefly mentions hair cosmetics, and does not specifically teach hair fixative cosmetics. With specific reference to claims 25 and 26, nowhere does Kousei teach or suggest the specifically claimed hair fixatives required under a proper 102(b) rejection.

For at least these reasons, Kousei does not teach or suggest with specificity each and every element of the presently claimed invention, and therefore cannot be said to anticipate it.

It is believed that these remarks overcome the Examiner's rejection of claims 1, 4, 6-11, 18 and 24-26 as being anticipated by Kousei under 35 U.S.C. § 102(b). Withdrawal, therefore, of the rejection is respectfully requested.

Reply to the Rejection of Claims 12, 21, 22 and 27 under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 12, 21, 22 and 27 as being unpatentable over Kousei. For the following reasons, Applicants respectfully traverse the Examiner's rejection of claims 12, 21, 22 and 27 as being unpatentable over Kousei.

As shown above, Kousei does not teach or suggest xanthan gum heat treated to a moisture content of less than about 8%. Further, Kousei does not teach or suggest use of

xanthan gum as a hair fixative. Claims 12, 21, 22 and 27 all depend from independent claims requiring xanthan gum having a moisture content of less than about 8% as a hair fixative, in contrast to Kousei. With specific reference to claims 21 and 22, Kousei only briefly mentions hair cosmetics, and does not teach or suggest cosmetics having fixative properties. Instead, all of its Examples are directed towards skin cosmetics (e.g., creams, lotions, toilet water) for improving the viscosity of those cosmetics. Regarding the Examiner's statement that the compositions of Kousei "can be used in hair cosmetics and in the form of a cream or gel", Applicants state that nowhere does Kousei state or teach that its xanthan gum can be used as a hair fixative in a hair fixative cream or gel. Kousei only exemplifies skin creams (Example 3), states that cosmetics include skin cosmetics such as lip and hand creams, indicates that the formulation can be an oil-in-water cream, and refers to various forms of the cosmetic as being solid, lotion, or "other forms which can be carried, such as pastes, gel, powders, etc." (p.11, last ¶ of Kousei). As such, Kousei does not provide motivation to one skilled in the art to use its xanthan gum to provide fixative properties to hair, specifically, xanthan gum having a moisture content of about 8% or less.

Regarding claims 12 and 27, the Examiner recognizes that Kousei does not teach the turbidity of the composition. The Examiner then states that one skilled in the art would be "motivated to decrease turbidity of the hair composition to manipulate the clarity of the composition", referring to U.S. Patent No. 6,147,038 in support of her claim. The '038 patent is directed towards optically clear hair conditioning composition obtained by the use of amino-functional silicone microemulsions. The '038 patent defines clarity in terms of NTU (col. 3, lines 9-17). According to the '038 patent, clarity of the compositions is "manipulated" by use of these amino-functional silicone microemulsions (col. 2, lines 55-62). Previous polysiloxane compositions did not provide this degree of clarity. Neither Kousei nor the present application refer to use of amino-functional silicon microemulsions for providing clarity to cosmetics. Further, for a reference to render a claimed invention obvious, it must provide motivation to one skilled in the art to achieve the claimed inventive effect. Kousei is completely silent with respect to clarity. In contrast, the present invention exemplifies in Table 5 that both untreated and heat-treated xanthan gum provide clarity comparable to commercially

available hair gels containing synthetic film-forming polymers.

For at least these reasons, Kousei does not render the presently claimed invention obvious. It is believed that these remarks overcome the Examiner's rejection of claims 12, 21, 22 and 27 as being unpatentable over Kousei. Withdrawal, therefore, of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

Reply to the Rejection of Claims 13, 14, 16, 17, 20-23 and 28 under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 13, 14, 16, 17, 20-23 and 28 as being unpatentable over Kousei in view of U.S. Patent No. 6,113,881 to Bhatt *et al* ("Bhatt"). For the following reasons, Applicants respectfully traverse the Examiner's rejection of claims 13, 14, 16, 17, 20-23 and 28 as being unpatentable over Kousei in view of Bhatt.

As noted by the Examiner, Kousei teaches that its cosmetic compositions may include other ingredients such as water soluble polymers as long as they do not hinder the efficacy of the invention (p. 7 of the translation). These water soluble polymers include, among others, film forming agents such as polyvinyl alcohol and polyvinyl pyrrolidone (p. 8 of the translation). However, as noted by the Examiner, Kousei does not specify the instant polymers, nor does it specify the use of a surfactant-free mousse formulation.

Bhatt is cited by the Examiner for its teachings of a polymer (carboxylated polyurethane resin) for use in surfactant-free hair mousse compositions. Bhatt also appears to be cited by the Examiner for teaching the second hair fixative polymers (col. 13, lines 16-67) claimed in claims 14 and 17.

As shown above, Kousei does not teach cosmetics containing xanthan gum having a moisture content of less than about 8%. Further, Kousei does not teach or suggest that its xanthan gum will provide high humidity curl retention of at least about 80% for two hours at 90% relative humidity (a hair fixing property). Finally, Kousei only briefly mentions hair cosmetics, and does not specifically teach hair fixative cosmetics wherein xanthan gum is the hair fixative. Therefore, even if one were to combine Kousei with Bhatt, one still would not have the presently claimed invention as Bhatt makes no reference to natural polymers of any kind for use as hair fixatives, more particularly, within the claimed limitations.

Further, considering the Kousei reference as a whole, one skilled in the art would understand Kousei as providing a solution for improved thickening (*i.e.*, greater viscosity). In contrast, considering the Bhatt reference as a whole, one skilled in the art would understand that enhanced viscosity is an undesirable effect (col. 13, lines 6-15, teaching that benefits include low viscosity). Therefore, one skilled in the art considering the Kousei reference as a whole and its objective of providing a cosmetic with improved thickening and stability, would not be motivated to look to Bhatt for a second polymer to include in its cosmetics, as Kousei states that only those ingredients can be added to its formulation that do not hinder the efficacy of its invention.

Regarding the Examiner's remarks concerning "applicant's arguments against the references individually", Applicants are aware of this requirement with respect to a 103(a) obviousness rejection. However, this is not what Applicants have done. As noted throughout this prosecution, Kousei does not teach cosmetics containing xanthan gum having a moisture content of less than about 8% and provide high humidity curl retention of at least about 80% for two hours at 90% relative humidity (a hair fixing property). Kousei also only briefly mentions hair cosmetics, and does not specifically teach hair fixative cosmetics wherein xanthan gum is the hair fixative. Therefore, for an obviousness rejection to render the claimed invention unpatentable, the references in combination must teach all these limitation. Further, there must be a motivation to combine the references. As noted, Kousei states that other water-soluble polymers, including film-forming polymers, can be used in its composition. This is sufficient to provide motivation to look to the art for other film-forming polymers. However, Bhatt still does not teach the other missing elements not found in Kousei. Therefore, even if one were to combine the two references, one still has not obtained the presently claimed invention.

For at least these reasons, Kousei in view of Bhatt does not teach or suggest with specificity each and every element of the presently claimed invention, and therefore cannot be said to render it obvious.


It is believed that these remarks overcome the Examiner's rejection of claims 13, 14, 16, 17, 20-23 and 28 as being unpatentable over Kousei in view of Bhatt. Withdrawal, therefore, of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

Based on the above remarks, allowance of the claims is believed to be in order, and such allowance is respectfully requested.

Respectfully submitted,

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NATIONAL STARCH AND CHEMICAL
COMPANY
Post Office Box 6500
Bridgewater, New Jersey 08807-0500
Phone 908.683.5433
Fax 908.707.3706



David P. LeCroy
Attorney for Applicants
Reg. No. 37,869